

**Work Order ID 48580**

Friday, June 26, 2009 11:15:25 AM



Page 1

Item ID: D350-748-101

Accept



Setup Start



Revision ID: D

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 7/15/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
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N/A	Rev D
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100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile &amp; type labels per PPPD350-748-101 CHG001

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-101 using CNC bender program D350F and Folio FT \_\_\_\_\_

DP 9-7-16

120

0.00



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

SNAP

Ph →

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-748-101 PAR #: N/A Fault Category: Cross tube NCR: (Yes) No DQA: A Date: 09.08.27  
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: 2 Date: 09.06.28

NCR: <u>48580</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
9/8/20	110	Cross tube was bent too high. See PAI Sheet. R.C. Process	<u>MS</u> 09/08/26 QST042	Scrap and Destroy no Replace Qty x1	<u>MS</u> 09-28-25	<u>S</u> 09/08/26	<u>MS</u> 09/08/26 QST042	<u>S</u> 09/08/26

NOTE: Date & initial all entries

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130  Crosstubes	Crosstubes	0.00							
Crosstubes	<b>Memo</b> 1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs, Set-up drill table as per QSI 0102-Deburr3-Engrave Part # and Batch # as per Dwg D350-748-1414-Remove all marks from tube within limits of D350-748- 141 5- Apply a light coat of	0.00							
140  QC	QC5- Inspect part completeness to step on W/O	0.00							
Quality Control	<b>Memo</b> CHECK 10 DEG HOLES WITH DT8876E(EUROCOPTER CLAMP)	0.00							
150  Outsource3	Outsource process-Cadplate per QSI017 4.1.9.1	0.00							
Outsource process - Cad plate	<b>Memo</b> Issue P/O: _____ Stress relief at 375° for 5 hours Magnetic Particle Inspect per ASTM E1444 Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2 Embrittle relief at 375° for 8 hours, Chromate Treat Possible Supplier: Southwest United Industries Ens	0.00							

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Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 	Receive & Inspect for Damage & Mat'l Certs	0.00							
Packaging	Memo	0.00							
Packaging	Ensure certificate of conformity is attached								
170 	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control									
180 	SprayPaint	0.00							
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside crosstube as per QSI 005 4.2 Dart QSI 005 4.2								

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Start Date: 7/15/2009 Start Qty: 1.00

Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00

Customer:




Reference:

Run Start

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 	QC14- Inspect Spray Paint	0.00							
QC Quality Control	<b>Memo</b> Then, Wrap in plastic bag to protect from scratches	0.00							
200 	Crosstubes	0.00							
Crosstubes Crosstubes	<b>Memo</b> 1-Install Ground wire Insert, then insert screw and washer 2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS	0.00							
210 	QC5- Inspect part completeness to step on W/O	0.00							
QC Quality Control	<b>Memo</b>	0.00							

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Stop

Item Name: Crosstube Installation, High Fwd

Start Date: 7/15/2009 Start Qty: 1.00

Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00

Customer:




Reference:

Run Start

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220	Pick Kit	0.00							
									
Packaging	Memo	0.00							
Packaging									
230	QC4- 100% Inspect kits for completeness	0.00							
									
QC	Memo	0.00							
Quality Control									
240		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D350-748-101								
	Location: _____								
	Rev: _____								

**Work Order ID 48580**

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Item ID: D350-748-101

Accept



Setup Start



Revision ID: D

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 7/15/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 8/3/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

250

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

# Picklist Print

Page 1

Friday, June 26, 2009 11:15:25 AM

Work Order ID: 48580



Parent Item: D350-748-101RevD



Parent Item Name: Crosstube Installation, High Fwd

Start Date: 7/15/2009

Required Date: 8/3/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21042L5 		Purchased	No			120	Each	0.0000	4.0000			
Nut ALS4-1032-225 		Purchased	No			200	Each	0.0000	1.0000			
Insert AN960JD10 		Purchased	No			200	Each	0.0000	1.0000			
Washer D2856-400RevA 		Manufactured	No			200	f	0.0000	1.2432			
Abraison Strip D3502-1RevB 		Manufactured	No			200	Each	0.0000	2.0000			
Support D350-748- 141TRNRevD 		Manufactured	No			200	Each	0.0000	1.0000			
Crosstube Turning Detail MS21920-20 		Purchased	No			200	Each	0.0000	2.0000			
Clamp (per MIL-DTL-8783C) AN4-6A 		Purchased	No			230	Each	0.0000	16.0000			
Bolt AN5-32A 		Purchased	No			230	Each	0.0000	4.0000			
Bolt												

p- 47157  
mb 09-07-16 (LK)



# Picklist Print

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Work Order ID: 48580



Parent Item: D350-748-101RevD



Parent Item Name: Crosstube Installation, High Fwd











Start Date: 7/15/2009

Required Date: 8/3/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN960JD416 		Purchased	No			230	Each	0.0000	32.0000 			
Washer AN960JD516 		Purchased	No			230	Each	0.0000	8.0000 			
Washer D3501-1RevA 		Manufactured	No			230	Each	0.0000	16.0000 			
Bushing MS21042L4 		Purchased	No			230	Each	0.0000	24.0000 			
Nut MS27039-1-10 		Purchased	No			230	Each	0.0000	1.0000 			
Screw												

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Shop Packet Print

Page 2

Date: Monday, 15/06/2009 9:51:03 AM  
 User: Julie Dawson

## Process Sheet

<b>Customer</b>	: CU-DAR001 Dart Helicopters Services	<b>Drawing Name</b>	: 350/355 AS X-TUBE FWD
<b>Job Number</b>	: 48580		
<b>Estimate Number</b>	: 12485		
<b>P.O. Number</b>	:	<b>Part Number</b>	: D350748101
<b>This Issue</b>	: 15/06/2009	<b>S.O. No.</b>	:
<b>Prsht Rev.</b>	: NC	<b>Drawing Number</b>	: N/A
<b>First Issue</b>	: / /	<b>Project Number</b>	: N/A
<b>Previous Run</b>	: 48579	<b>Drawing Revision</b>	: D
<b>Written By</b>	:	<b>Material</b>	:
<b>Checked &amp; Approved By</b>	: <u>JLD 09.06.15</u>	<b>Due Date</b>	: 10/07/2009
<b>Comment</b>	: Est Rev:A New Issue 06-07-05 JLM : Est Rev:B Update qty of MS21042L5 06-09-12 KJ : Est Rev:C Rev B 07-11-15 DD : Est Rev D Combined manufacturing 08.04.02 EC verified by: DD : Est Rev:E 08-06-24 revD as per dwg DD verified by:EC		
<b>Qty:</b>	1	<b>Um:</b>	Each

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	DC	DOCUMENT CONTROL
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**Comment:** Photocopy bluefile & type labels per PPPD350-748-101 CHG001

2.0	D350748141TRN	Crosstube Turning Detail
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**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
 CROSSTUBE TURNING DETAIL  
 batch \_\_\_\_\_

3.0	BENDING	BENDING MACHINE - SKIDTUBES
-----	---------	-----------------------------



**Comment:** BENDING MACHINE  
 Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT \_\_\_\_\_

4.0	QC15	DIMENSIONAL CHECK OF X-TUBES
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**Comment:** DIMENSIONAL CHECK OF X-TUBES

5.0	CROSSTUBES	CROSSTUBES RESOURCE 1
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**Comment:** LANDING GEAR RESOURCE 1

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs,  
 Set-up drill table as per QSI 010

2-Deburr

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Monday, 15/06/2009 9:51:03 AM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48580

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

3-Engrave Part # and Batch # as per Dwg D350-748-141

4-Remove all marks from tube within limits of D350-748-141

5- Apply a light coat of LPS3 on the interior of tube

Batch: \_\_\_\_\_

6.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

CHECK 10 DEG HOLES WITH DT8876E(EUROCOPTER CLAMP)

7.0

OUTSIDE SERV.11

OUTSIDE SERVICE -CROSSTUBES



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: \_\_\_\_\_

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

8.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

10.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

2-Prime Outside of Tube as per Dart QSI 005 4.2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Monday, 15/06/2009 9:51:03 AM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48580

Part Number: D350748101

Job Number:



Seq. #:	Machine Or Operation:	Description :
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11.0

QC14

INSPECT SPRAY PAINT



**Comment:** Inspect Spray Paint  
Then, Wrap in plastic bag to protect from scratches

12.0

D35021

Support



**Comment:** Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)  
SUPPORT  
Batch: \_\_\_\_\_

13.0

D2856400

Abrasion Strip



**Comment:** Qty.: 1.2401 f(s)/Unit Total : 1.2401 f(s)  
Abrasion Strip 7.10" long x2  
Batch: \_\_\_\_\_

14.0

ALS41032225

Insert



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
Insert  
Batch: \_\_\_\_\_

15.0

AN960JD10

Washer



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
Washer  
Batch: \_\_\_\_\_

16.0

MS2192020

Clamp (per MIL-DTL-8783C)



**Comment:** Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)  
Clamp (per MIL-DTL-8783C)  
Batch: \_\_\_\_\_

17.0

MS27039110

Screw



**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
Screw  
Batch: \_\_\_\_\_

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48580

Part Number: D350748101

Job Number:



Seq. #:	Machine Or Operation:	Description :
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18.0	CROSSTUBES	CROSSTUBES RESOURCE 1
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Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert,then insert screw and washer

2-Install Abraison strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141,Torque to 60-80 IN-LBS

19.0	QC5	INSPECT WORK TO CURRENT STEP
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Comment: INSPECT WORK TO CURRENT STEP

20.0	PACKAGING 1	PACKAGING RESOURCE #1
------	-------------	-----------------------



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

21.0	D35001	Saddle
------	--------	--------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

350 SADDLE

Batch: \_\_\_\_\_

22.0	D35011	Bushing
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Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

BUSHING

Batch: \_\_\_\_\_

23.0	AN46A	Bolt
------	-------	------



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: \_\_\_\_\_

24.0	AN441A	bolt
------	--------	------



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: \_\_\_\_\_



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48580

Part Number: D350748101

Job Number:



Seq. #:	Machine Or Operation:	Description :
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25.0	AN532A	Bolt
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
Bolt  
Batch: \_\_\_\_\_

26.0	AN960JD416	Washer
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Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)  
Washer  
Batch: \_\_\_\_\_

27.0	AN960JD516	Washer
------	------------	--------



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)  
Washer  
Batch: \_\_\_\_\_

28.0	MS21042L4	Nut
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Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)  
Nut  
Batch: \_\_\_\_\_

29.0	MS21042L5	Nut
------	-----------	-----



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
Nut  
Batch: \_\_\_\_\_

30.0	QC4	INSPECT 100% KITS FOR COMPLETENESS
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Comment: INSPECT 100% KITS FOR COMPLETENESS

31.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1  
Identify and pack for shipping as per PPP D350-748-101  
Location: \_\_\_\_\_  
PPP Rev: \_\_\_\_\_

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 48580

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

32.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

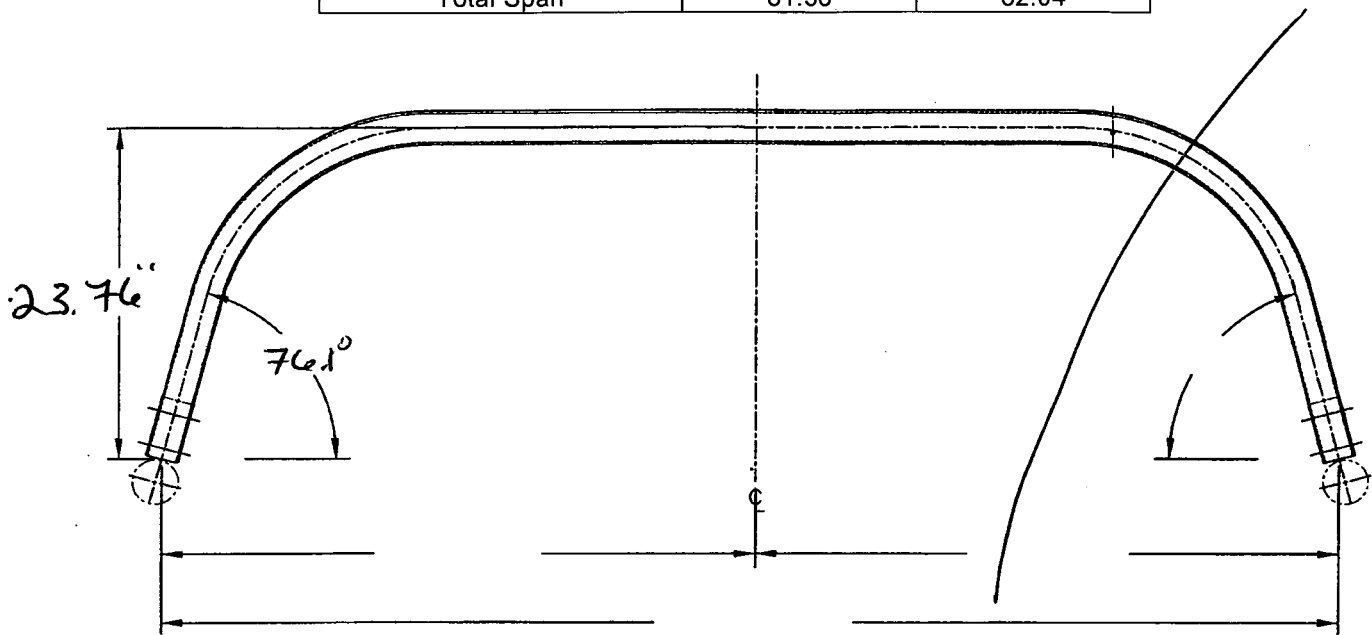
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 48580
<b>Description:</b> Crosstube High Fwd (AS350/355)		<b>Part Number:</b> D350-748-101
<b>Inspection Dwg:</b> D350-748-141 <b>Rev:</b> D		<b>Page 1 of 1</b>

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
Scrap

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	<i>[Signature]</i>



DESIGN <i>qp</i>	DRAWN BY <i>qp</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>HA</i>	APPROVED <i>HA</i>	DRAWING NO. D350-748-141	REV. D SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI FWD)	SCALE NTS
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6017-115 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

RELEASED  
06.10.31 *HA*

QTY	P/N	DESCRIPTION
X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
1	D6017-115	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

UNDER REVIEW

09.02.05  
PER PCR #09.001

**D350-748-141 CROSSTUBE:**

- 1) MATERIAL: MANUFACTURED FROM D6017-115 OR D6015-125  
FINISHED LENGTH = 110.27±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

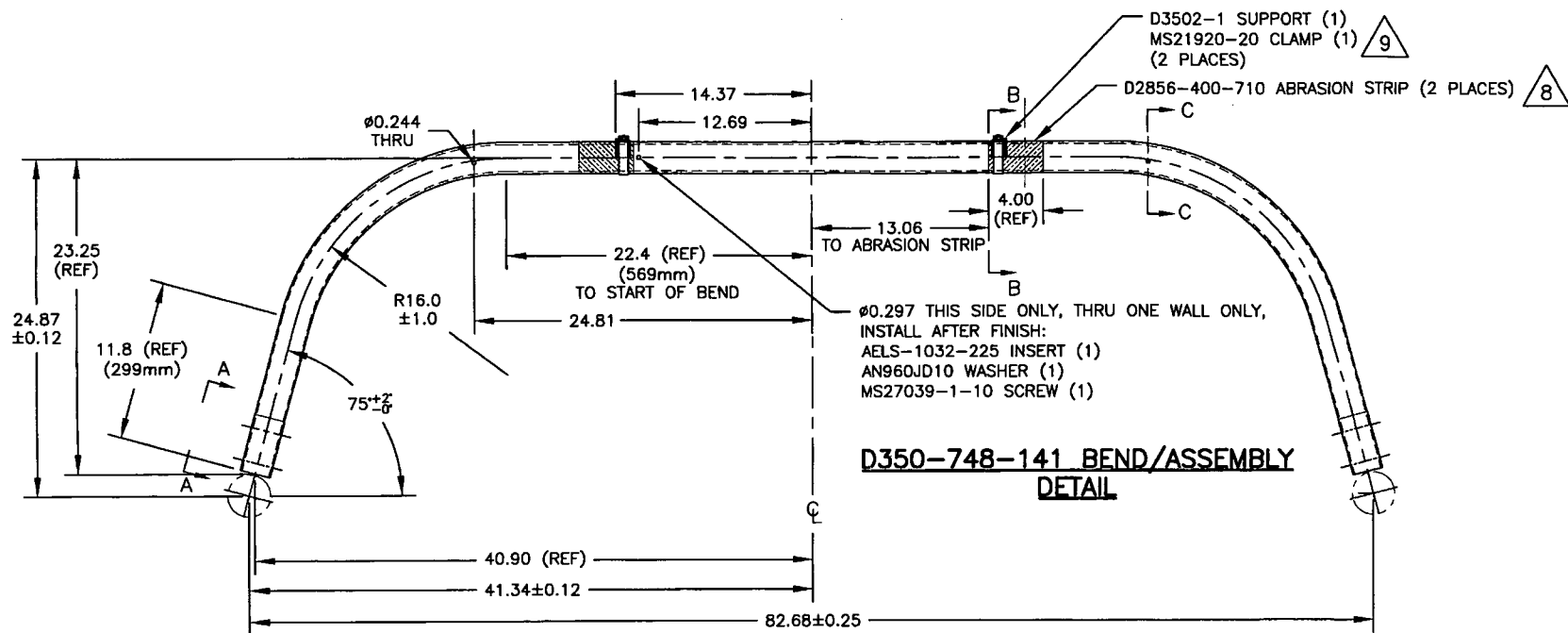
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WITHOUT NOTICE  
WORK ORDER  
1890

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OK 07.10.22

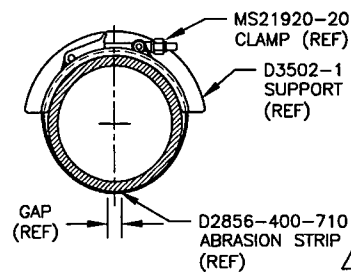
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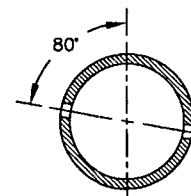
#### SECTION B-B

SCALE 1:2



#### SECTION C-C

SCALE 1:2



UNDER REVIEW

09.02.05

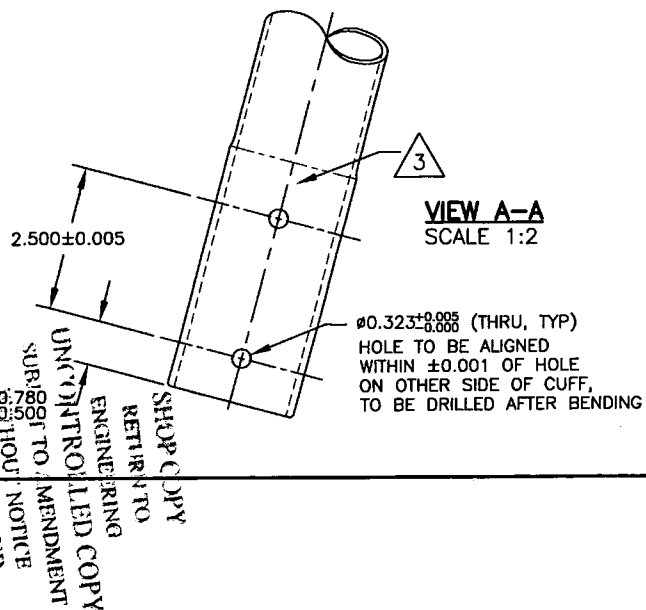
UNDER REVIEW

09.02.16

ck 09.10.22

RELEASED

06.10.31



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DESIGN	q	DRAWN BY	q	<b>DART</b>	DART AEROSPACE LTD. MARKHAM, ONTARIO, CANADA
CHECKED	#	APPROVED	#	DRAWING NO.	D350-748-141
DATE	06.10.31	TITLE	CROSSTUBE (AS 350/355 HI FWD)	REV. D	SHEET 2 OF 3
				SCALE	1:8

NO. 78580  
WORK ORDER  
65 HOU NOTICE  
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# Work Order Summary

August 26, 2009 10:57:02 AM

Page 1 of 1

Criteria : Work Order ID: 48580 Item ID: D350-748-101RevD Product Family CROSSTUBES  
 Work Order Start Dates 7/15/09 to 7/15/09 11:59:59 PM Work Order Required Dates 8/03/09 to 8/03/09  
 11:59:59 PM

All References

Work Order Status Complete

Work Order ID 48580 Required Qty 1.0000 Status Code Complete  
 Item ID D350-748-101RevD Accepted Qty 0.0000 Scrap Qty 1.0000  
 Item Name Crosstube Installation, High Fwd  
 Current Acct Value \$984.444 Sales Order ID  
 Start Date 7/15/09 Required Date 8/03/09 Completed Date 8/26/09  
 10:56:14 AM

Standard	** Actual **	** Acct. Value **	** Variance **	** Variance % **
Direct Costs	Total	Each	Each	Each
Material	\$100.490	\$0.000	\$164.446	\$164.446 100.00%
Labor	\$96.153	\$0.000	\$768.280	\$768.280 100.00%
Outplant	\$0.000	\$0.000	\$0.000	\$0.000 0.00%
Variable Burden	\$0.000	\$0.000	\$0.000	\$0.000 0.00%
Fixed Burden	\$226.126	\$0.000	\$1,734.270	\$1,734.270 100.00%
Material Burden	\$0.000	\$0.000	\$0.000	\$0.000 0.00%
** Total **	\$422.769	\$0.000	\$2,666.996	\$2,666.996

Item ID/ Item Name	Required Qty	Issue Code	Issue Date	Issued Qty	Cost Amount
D350-748-141TRNRevD	1.0000				
Crosstube Turning Detail			7/16/09	1.0000	\$337.420
Total Matl Amts:					\$337.420

## Work Center CNC Bend 2

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
BRUN01												
		7/16/09										
110			0.00	0.00	0.18	0.18	1.00	\$0.000	\$2.962	\$7.836	\$0.000	\$10.79
110			0.00	0.00	0.41	0.41	1.00	\$0.000	\$6.702	\$17.728	\$0.000	\$24.43
PACQ03												
		7/16/09										
110			0.00	0.00	0.85	0.85	1.00	\$0.000	\$13.749	\$36.372	\$0.000	\$50.12
Total:			0.00	0.00	1.45	1.45	3.00	\$0.000	\$23.413	\$61.936	\$0.000	\$85.34

August 26, 2009 10:57:02 AM

Work Order Summary

Page 1 of 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries